Status Report

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Table of contents

- Search for H->bb at LHeC using Delphes
  - Checked dependance of HCal energy resolution
    - Only with CC: H->bb sample
    - Delphes running is not finished for other background

Main setups of Delphes

- Coverage:
  - Calorimeter: $|\eta|<5$ Tracking: $|\eta|<3.0$
- Jet reconstruction:
  - anti k_T algorithm with ΔR =0.7
- HCal resolution

$$\frac{\sigma}{E} = \frac{30\%}{\sqrt{E}} + 3\% \ (|\eta| < 3) \qquad \frac{\sigma}{E} = \frac{60\%}{\sqrt{E}} + 5\% \ (3 < |\eta| < 5)$$

- ECal resolution

$$\frac{\sigma}{E} = \frac{35\%}{E} + \frac{7\%}{\sqrt{E}} + 0.7\% \ (|\eta| < 3)$$

$$\frac{\sigma}{E} = \frac{20\%}{\sqrt{E}} + 2\% \ (3 < |\eta| < 4)$$

$$\frac{\sigma}{E} = \frac{40\%}{\sqrt{E}} + 10\% \ (4 < |\eta| < 5)$$

- B-tag
  - $|\eta| < 3.0$
  - b-jet identification: 60%
  - c-jet mis-ID: 10%
  - other jet mis-ID: 1%

Comparison of HCal resolution

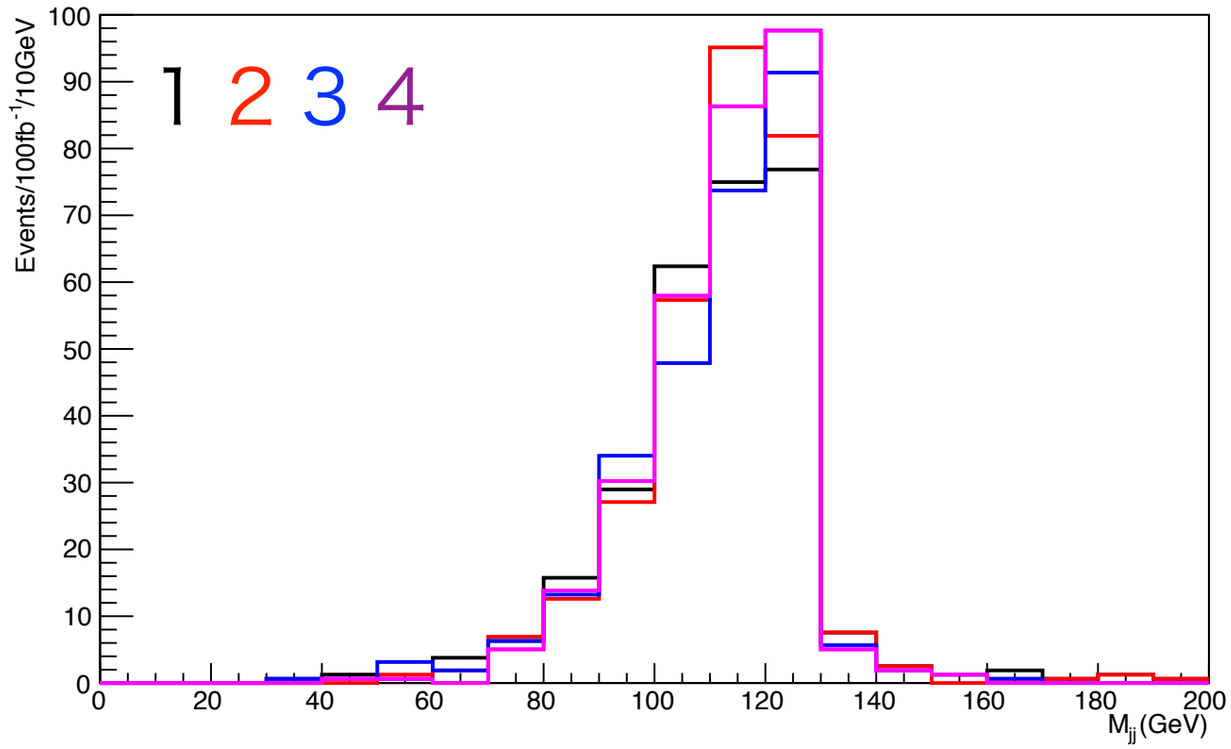
- Compared constant term of HCal energy resolution using CC: H->bb

$$\frac{\sigma}{E} = \frac{a}{\sqrt{E}} \oplus b \ (|\eta| < 3)$$

$$\frac{\sigma}{E} = \frac{c}{\sqrt{E}} \oplus d \ (3 < |\eta| < 5)$$

	a(%)	b(%)	c(%)	d(%)
1	30	1	60	3
2	30	3	60	5
3	30	5	60	7
4	30	7	60	9

M_{bb} after all cut



Number of events in signal region
(100<M_{bb}<130 GeV)

- Number of signal didn't change significantly
- Need to be compared with background (especially with photo production)

1: 221 +- 11
2: 234 +- 12
3: 213 +- 12
4: 242 +- 12